

# Laparoscopic Management of Delayed Recurrent Intussusception in an Older Child

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## ABSTRACT

**Background:** Intussusception is the most common cause of bowel obstruction in infants and children. Although early recurrence is not uncommon, recurrence years later is rare.

**Methods:** A 13-year-old male with a history of recurrent intussusception at ages 2 and 5 presented with recurrent intussusception 8 years later. The diagnosis was made using computed tomography, and the patient underwent a laparoscopic ileocecectomy with an uneventful postoperative course.

**Results:** The specimen was remarkable for findings of multiple enlarged lymph nodes over the serosal surface of the ileum and the terminal ileum with focal edema, prominent lymphoid hyperplasia and large hemorrhagic areas.

**Conclusion:** This case highlights the fact that in a child with a delayed recurrence of intussusception, the presence of a lead point should be suspected, and operative therapy should be strongly considered over hydrostatic reduction. The current management of recurrent intussusception is reviewed and applied to this case.

## CASE REPORT

A 13-year-old male with a past medical history significant only for episodes of intussusception at 2 and 5 years of age, each of which was successfully reduced with air contrast enemas, presented to the emergency department with 3 days of intermittent sharp epigastric pain. At the time of presentation, the patient was experiencing these episodes every 15 minutes, yet denied nausea, vomiting, diarrhea, hematochezia, fever, chills, or any other constitutional symptoms. On physical examination, the patient was afebrile, hemodynamically stable, and appeared to be in moderate distress due to his abdominal pain. His abdomen was soft and nondistended with no palpable masses. He was tender to palpation in the hypogastric area, with no signs of peritoneal irritation. The laboratory work was normal, showing a white count of 8300, and a hematocrit of 40.5.

The patient underwent an abdominal x-ray (**Figure 1**), which showed no evidence of obstruction or free air, but did reveal dilated loops of small bowel in the right lower quadrant area and associated paucity of gas in the cecum. After pediatric surgery consultation, the patient underwent a contrast enhanced computed tomographic (CT) scan of the abdomen and pelvis (**Figure 2**), which revealed a right lower quadrant ileocolic intussusception.

Given these findings, the patient was taken to the operating room for exploratory laparoscopy. Three 5-mm trocars were placed in the umbilicus, suprapubic area, and left lower quadrant. Adhesions between the cecum and right anterior abdominal wall (**Figure 3**) were noted with no evidence of free fluid or pus. The ileum was then easily reduced by using atraumatic graspers from out of the cecum where it had intussuscepted. A significant amount of mesenteric adenopathy and enlarged lymph nodes were present, but no creeping fat or bowel wall thickening suggesting Crohn's disease was noted. No bowel or mesenteric vascular compromise or other abnormalities were noted after the entire small bowel was completely examined. After placement of a fourth right-sided (upper quadrant) port, the right colon was completely mobilized laparoscopically and brought towards the midline. It was necessary to enlarge the umbilical incision slightly to 3cm due to significant mesenteric adenopathy to remove the

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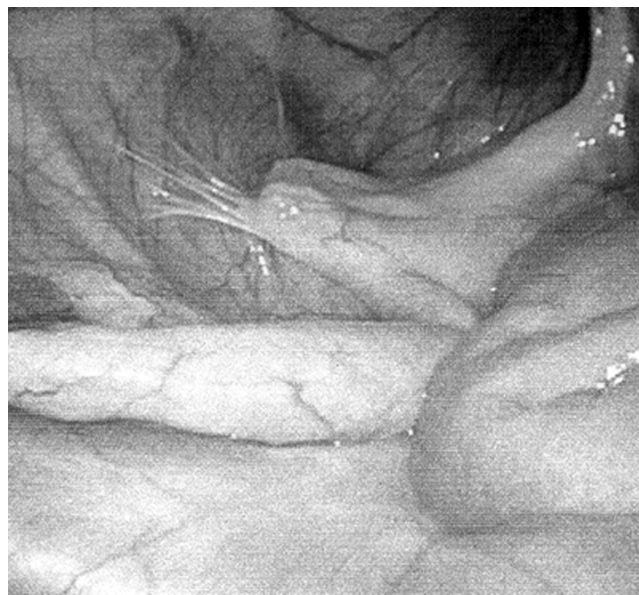


**Figure 1.** Abdominal x-ray showing no evidence of obstruction or perforation.



**Figure 2.** Computed tomographic scan showing right lower quadrant intussusception (white arrow).

ileocecum. Extracorporeal resection and stapled anastomosis were performed. The completed anastomosis was reduced into the abdomen and inspected laparoscopically. Finally, the trocars were removed and the incisions were closed.



**Figure 3.** Intraoperative photograph showing adhesions between the right lower quadrant abdominal wall and cecum.

The pathology revealed adenoviral enteritis with marked lymphoid hyperplasia of both the distal and terminal ileum. Focal edema with prominent lymphoid hyperplasia and large areas of hemorrhage in the terminal ileum were also noted. The appendix was included in the specimen and also had adenoviral inclusions.

The patient's postoperative course was uneventful, and he was discharged from the hospital on the fifth postoperative day without complications.

## DISCUSSION

This case represents an interesting example of recurrent intussusception successfully managed by laparoscopic-assisted bowel resection. The current case was probably caused by scar tissue as evidenced by the adhesions in the right lower quadrant, but the lymphoid hyperplasia in the right lower quadrant also represented a lead point.

Intussusception represents the most common cause of bowel obstruction in infants and children, but the reported incidence of recurrent intussusception is only 8% to 15%.<sup>1</sup> In their review of 258 patients with intussusception, Fecteau et al<sup>2</sup> showed a 10.8% incidence of recurrence, with 30% of recurrence occurring within 24 hours and 74% within 6 months. Second recurrences have been described,<sup>2-4</sup> but our case is unusual in that it occurred over 8 years after the initial presentation.

Lymphoid hyperplasia of intestinal Peyer patches can be nonspecific but is also associated with various infections, including adenovirus, herpes simplex virus, and rotavirus.<sup>5</sup> Our patient presented with abdominal pain as his only symptom. He did not have nausea, vomiting, or currant jelly stool. Presence of these symptoms is less typical of patients with recurrent intussusception compared with those with sentinel events.<sup>2</sup>

Previous authors have recommended hydrostatic reduction as the first line treatment for recurrent intussusception, citing a 62.8% success rate for recurrent episodes with no complications and 68.9% for the initial episode.<sup>2</sup> Consideration was not given to hydrostatic reduction in this case given the delayed presentation of recurrence and age of the patient, making both the presence of a lead point and the need for concomitant bowel resection more likely.

Other authors have recommended laparoscopic ileocolonic pexy as treatment for recurrent intussusception, similar to the open cecopexy done in adults for volvulus.<sup>3</sup> In this technique, the distal ileum is attached to the ascending colon by using interrupted suture. This technique cannot be recommended for use in children because of significant concern about subsequent obstruction from "pexing" any intestine in young patients. Again, the possibility of a lead point in the current case influenced our decision to resect the bowel.

We have excellent laparoscopic experience at our institution and use laparoscopy in the initial management of intussusceptions irreducible by hydrostatic enema. In our experience with this approach, we have found that most can be easily reduced using atraumatic graspers without the need for bowel resection. We also have experience with laparoscopic and laparoscopic-assisted bowel resection, and believe that when possible, these techniques should be used. This differs from previously held viewpoints that children with intussusception needing resection would not benefit from a laparoscopic approach.<sup>6</sup> Others have advocated using pneumatic reduction of the intussusception concurrently with laparoscopy<sup>7,8</sup> although we consider this unnecessary. Colonoscopy has

also been described as a good preoperative study to diagnose lymphoid hyperplasia or other potential lead points,<sup>5</sup> but we also do not do this routinely.

## CONCLUSION

Previous investigators have recommended recurrent intussusception be treated surgically when there is (1) more than one episode of recurrence, (2) in patients over 2 years of age, and (3) if a pathological lead point is suspected.<sup>2</sup> Our case report supports this management plan. In conclusion, patients presenting with extremes of delay with recurrent intussusception should be managed operatively, and if possible laparoscopically with resection of involved bowel.

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